COLORADO RIVER RECOVERY PROGRAM Project No.: 98b
FY-2004-2005 PROPOSED SCOPE OF WORK
Upper Yampa northern pike translocation

Lead Agency: U. S. Fish and Wildlife Service
Colorado River Fishery Project

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Category
__ Ongoing project
xx Ongoing-revised project
__ Requested project
__ Unsolicited proposal

Expected Funding Source
xx Annual funds
__ Capital Funds
__ Other

I. Title of Proposal: Upper Yampa River northern pike translocation and monitoring

II. Relationship to RIPRAP:

Green River Action Plan: Yampa and Little Snake rivers
- III.A.1.b(1) Remove and translocate northern pike and other sportfishes from Yampa River.
- III.A.1.b(2) Reduce northern pike reproduction in the Yampa River.
- III.A.1.d. Remove smallmouth bass.

III. Study Background/Rationale and Hypotheses

Northern pike *Esox lucius* is an exotic, predatory species which has become established in the Yampa River. Northern pike escaped from Elkhead Reservoir (a reservoir on Elkhead Creek, which is a tributary to the Yampa River near Craig, Colorado) where they were originally stocked to provide sportfishing. Since escapement, they have established large, reproducing populations in the upper Yampa River (Nesler 1995; personal communications with John Hawkins, CSU, and Richard Anderson, CDOW). The large populations likely provide a source for continual movement of northern pike into the lower Yampa River and further downstream into the Green River where they coexist with three endangered fishes — Colorado pikeminnow *Ptychocheilus lucius*, razorback sucker *Xyrauchen texanus*, and humpback chub *Gila cypha*. Large portions of the lower Yampa River are designated critical habitat for these species. Northern pike provide a significant predatory risk to these endangered fish, especially to juveniles and small adults of Colorado pikeminnow and razorback sucker. Additionally, northern pike present a significant predatory risk to other native species in the basin (e.g., flannelmouth sucker *Catostomus latipinnis* and roundtail chub *G. robusta*) that have been considered for listing under the Endangered Species Act in the past (Martinez 1995; Nesler 1995). Northern pike were identified as presenting a significant risk to the endangered fishes by a majority of upper basin researchers in surveys conducted during the late 1980's (Hawkins and Nesler 1991).

The Recovery Program has established an active program to control nonnative fishes in the main rivers of the upper basin to assist in recovery of the endangered fishes found there. To date, the Recovery Program has initiated nonnative reduction efforts for channel catfish and northern pike in the Yampa and Green rivers, and for small cyprinids in the Colorado and Green River drainages. In some cases, such as the Yampa River, northern pike have been removed from the main channel and stocked into off-channel impoundments to provide fishing opportunity for local anglers.

Temporarily reducing the pike population through mechanical means appears to be a viable option for the rivers of the upper basin (Lentsch et al. 1996), although complete eradication is unlikely. A small, non-reproducing population of northern pike in the Gunnison River was reduced with relatively little effort applied at a time when pike were vulnerable (McAda 1997). Initial sampling efforts in the Yampa River suggest that substantial numbers of northern pike can be captured during spring when they enter shallow floodplain habitats for spawning (Nesler 1995; J. Hawkins, personal communication; USFWS unpublished data). Sampling in 2001 through 2003 yielded a total catch of 1,321 northern pike (Figure 1).

The aquatic management plan for the Yampa River includes trapping northern pike in the river and transporting them to ponds in the Yampa Valley that qualify under the Nonnative Stocking Procedures (CDOW 1998). Preliminary efforts in 2001, 2002, and 2003 showed that large numbers of anglers were attracted to the ponds at the Yampa State Wildlife Area when northern pike were stocked there (personal observations).

Translocation of pike will reduce the numbers of northern pike in the Yampa River to benefit endangered fishes and still provide recreational opportunities for anglers.

IV. Study Goals, Objectives, End Product:

Goal

Improve survival of endangered fish in the Yampa and Green rivers.

Objectives

1. Reduce numbers of adult northern pike in the study reach.
2. Determine population size and structure of northern pike in the study reach and the subsequent changes in the population size and structure after translocation.
3. Maintain public support for the Recovery Program by providing off-channel angling opportunity to Yampa Valley anglers with northern pike removed from the Yampa River.
4. Monitor the native fish community in the study area.
5. Monitor smallmouth bass in the study area.

End products: Annual report due 11/04; presentation of results at annual researchers meeting

V. Study area: Upper Yampa River (upstream from Craig, Colorado); river miles 139.7 to 177.5

VI. Study Methods/Approach:

Trap nets will be set in floodplain habitats along the Yampa River at Carpenter Ranch, Yampa SWA and additional sites as they are available. Sampling will be done for about six to eight weeks while river flows are adequate to provide quiet-water habitat attractive to pike. Preliminary efforts indicate that pike aggregations can be reduced quickly and catch rates decline substantially after about two weeks of sampling in one location. Therefore, sampling would occur for about two weeks at each site and nets would then be moved to another location. Two to four trap nets would be set at each site and emptied regularly during the sampling period. Because the number of fish collected in off-channel habitats are influenced markedly by the hydrograph and movement to spawning sites, data will be bracketed by temporal intervals and means compared among years.

Most of the Yampa River in the study area passes through private property and Carpenter Ranch and Yampa SWA are currently the only locations where sampling is permitted. Floodplain habitat along the Yampa River is widespread and success of the

trapping effort will be greatly increased by obtaining access to additional habitat. Sampling duration will be reduced if additional sampling sites cannot be identified or permission to access the sites cannot be obtained. Fyke netting methods have been and will remain similar across study years.

In addition to trap netting, the main channel of the Yampa River between the Highway 40 bridge upstream of Hayden, Colorado, and Craig, Colorado, will be electrofished using hard-bottom or raft electrofishing boats. The river channel will be electrofished six times between April and June. The entire study area will be divided into two-mile sections that will be sampled individually. On the first sampling pass, in agreement with CDOW, all northern pike will be tagged with Floy tags and released. On the next five sampling passes all northern pike will be removed. Any native fish captured will be identified to species, and length (TL) and weight will be recorded. All smallmouth bass captured will be Floy tagged with a red Floy tag and also receive a left pelvic fin clip, and returned to the river. Data will be analyzed to establish a population estimate of northern pike, proportion and size structure of northern pike population that is removed, movement of northern pike and status of the smallmouth bass and native fish populations in the study reach. All northern pike captured during removal passes will be held alive, measured in total length, tagged with a numbered external tag and transported to a stocking location that is agreed to by all parties to the Nonnative Stocking Procedures. Incidental mortalities will be refrigerated (when possible) and turned over to the Colorado Division of Wildlife. The relocation effort of northern pike will be closely coordinated with CDOW personnel.

All capture and length data on northern pike, smallmouth bass, and other species collected during the sampling effort will be turned over to the Colorado Division of Wildlife and added to the Recovery Program database. A brief summary report will be produced after sampling is completed and distributed through the Recovery Program's annual reporting process. In addition, results will be presented at the annual researchers meeting.

To be effective and to maintain public understanding and support, it will be critical to initiate an active and widespread public relations campaign. Public relations will be critical to the success of this project. We will assist the RIP staff, CDOW, and the Yampa Basin Partnership in their I&E efforts on nonnative removal projects.

VII. Task Description and Schedule

1. April through June: Trap net floodplain habitats along the Yampa River. Transport all captured northern pike to ponds or reservoirs acceptable under the Nonnative Stocking Procedures.

2. April through June: Electrofish the main channel of the Yampa River between Hayden and Craig, CO (six passes). All northern pike captured will be stocked into Loudy-Simpson or Yampa State Wildlife Area ponds (CDOW will transport northern pike if Rio Blanco Lake is used).

3. July: Consolidate data and provide to Colorado Division of Wildlife and to Recovery Program database.

4. December 2004-2005: Prepare annual reports. Attend annual researchers meeting.

VIII. FY-2004 Work

Deliverables/Due Dates: Annual report 11/04

Task 1.

Labor	
Project Manager	
(GS-14 at $463/8 hr day for 32 days)	14,842
Project Biologist	
(GS-9 at $259/10 hr day for 45 days)	11,551
Biological Technicians	
(GS-5 at $151/10 hr day for 100 days)	15,254
Labor Subtotal	41,647
Travel	3,450
Supplies (gas, nets, repairs, etc.)	1,250
Subtotal	$46,347

Task 2.

Labor	
Project Manager	
(GS-14 at $463/8 hr day for 4.5 days)	2,130
Project Administration	
(GS-7 at $169/8 hr day for 12 days)	2,091
Project Biologist	
(GS-9 at $259/10 hr day for 71 days)	18,478
Biological Technicians	
(GS-5 at $151/10 hr day for 212 days)	32,043
Labor Subtotal	54,742

Travel	5,000
Subtotal	$59,742

Tasks 3 and 4.

Labor	
Project Biologist (5 wks)	
(GS-9 at $203/8 hr day for 25 days)	5,047
Subtotal	$ 5,047
Total	$111,136

FY-2005 Work

Deliverables/Due Dates: Annual report 12/04

Task 1.

Labor	
Project Manager	
(GS-14 at $463/8 hr day for 32 days)	14,842
Project Biologist	
(GS-9 at $259/10 hr day for 45 days)	11,551
Biological Technicians	
(GS-5 at $151/10 hr day for 100 days)	15,254
Labor Subtotal	41,647
Travel	3,450
Supplies (gas, nets, repairs, etc.)	1,250
Subtotal	$46,347

Task 2.

Labor	
Project Manager	
(GS-14 at $463/8 hr day for 16.5 days)	7,686
Project Administration	
(GS-7 at $169/8 hr day for 12 days)	2,091
Project Biologist	
(GS-9 at $259/10 hr day for 71 days)	18,478
Biological Technicians	
(GS-5 at $151/10 hr day for 212 days)	32,043
Labor Subtotal	60,298
Travel	5,000
Subtotal	$65,298

Tasks 3 and 4.

Labor	
Project Biologist (5 wks)	
(GS-9 at $203/8 hr day for 25 days)	5,047
Subtotal	$ 5,047
Total	$116,692

IX. Budget Summary

FY-2004 $111,136
FY-2005 $116,692

X. Reviewers

Tom Nesler, Colorado Division of Wildlife

XI. References

CDOW (Colorado Division of Wildlife). 1998. Aquatic Wildlife Management Plan: Yampa River Basin. Aquatic Wildlife Section, Denver.

Hawkins, J. A., and T. P. Nesler. 1991. Nonnative fishes in the upper Colorado River basin: an issue paper. Final Report. Colorado State University Larval Fish Laboratory and Colorado Division of Wildlife, Fort Collins.

Lentsch, L. D., R. T. Muth, P. D. Thompson, B. G. Hoskins, and T. A. Crowl. 1996. Options for selective control of nonnative fishes in the upper Colorado River basin. Final Report to the Recovery Program for the Endangered Fishes of the Upper Colorado River. Publication 96-14, Utah Division of Wildlife Resources, Salt Lake City, Utah.

Martinez, P. J. 1995. Coldwater Reservoir Ecology. Colorado Division of Wildlife, Federal Aid in Fish and Wildlife Restoration Project F-242R-2, Job Final Report, Fort Collins.

McAda, C. W. 1997. Mechanical removal of northern pike from the Gunnison River, 1995–1996. Final Report to the Recovery Program for the Endangered Fishes of the Upper Colorado River, Project 58. U. S. Fish and Wildlife Service, Grand Junction, Colorado.

Nesler, T.P. 1995. Interactions between endangered fishes and introduced game fishes in the Yampa River, Colorado, 1987-1991. Final Report, Federal Aid Project SE-3. Colorado Division of Wildlife, Fort Collins.

Figure 1. Fyke net data length frequency from 2001-2003 (top) and 2003 electrofishing data length frequency (bottom), Yampa River, Colorado.